

**REMARKS**

Applicants acknowledge receipt of an Office Action dated October 9, 2003. Claims 1-14 are currently pending in the application and under consideration. No claim amendments have been made in this response. Applicants respectfully request reconsideration of the present application in view of the following remarks.

**Rejections Under 35 U.S.C. §103**

In the outstanding Office Action, the PTO has maintained the previous rejections under 35 U.S.C. §103(a) set forth in the prior Office Action. Specifically:

- The PTO has maintained its rejection of claims 1, 3 and 4 under 35 U.S.C. §103(a) as being unpatentable over Japanese Patent Publication 10-092796 to Imafuku *et al.* (hereafter "Imafuku") in view of U.S. Patent 5,919,332 to Koshiishi *et al.* (hereafter "Koshiishi").
- The PTO has maintained its rejection of claim 5 under 35 U.S.C. §103(a) as being unpatentable over Imafuku in view of Koshiishi in further view of U.S. Patent 6,149,730 to Matsubara *et al.* (hereafter "Matsubara").
- The PTO has maintained its rejection of claims 2, 6 and 7 under 35 U.S.C. §103(a) as being unpatentable over Imafuku in view of Kishiishi and further in view of Japanese Patent Publication 01-213910 to Ando (hereafter "Ando").
- Finally, the PTO has maintained its rejection of claim 8 under 35 U.S.C. §103(a) as being unpatentable over Imafuku in view of Kishiishi and Ando, in further view of Matsubara. Applicants respectfully traverse these rejections for the reasons set forth below.

Applicants respectfully traverse these rejections for the reasons set forth in Applicants' previous response and for the reasons set forth below.

On page 6 of the outstanding Office Action, the PTO stated that:

[T]he first sentence of 716.02(e) states that "the claimed subject must be compared with the closest prior art to be effective to rebut a prima facie [*sic*] case of obviousness" and the closest

prior art is Imafuku et al. [sic] in view of Koshiishi et al. [sic]  
One cannot show nonobviousness by attacking the references individually where the rejections are based on the combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

This statement seems to reflect a fundamental misunderstanding of the law and of the guidelines set forth in the MPEP.

In establishing unexpected results, Applicants are only required to compare their invention against the single closest reference in the prior art. See, for example, MPEP §716.02(e):

**716.02(e) Comparison With Closest Prior Art**

\* \* \*

“A comparison of the *claimed* invention with the disclosure of each cited reference to determine the number of claim limitations in common with each reference, bearing in mind the relative importance of particular limitations, will usually yield the closest single prior art reference.” *In re Merchant*, 575 F.2d 865, 868, 197 USPQ 785, 787 (CCPA 1978).

(emphasis added). It would be illogical to require Applicants to compare the claimed invention to a combination of references since this would result in a comparison of the claimed invention to itself. This has been recognized both by the CCPA in *In re Chapman*, 357 F.2d 418 (CCPA 1966) and in the MPEP. MPEP §716.02(e) states, for example:

**THE CLAIMED INVENTION MAY BE COMPARED WITH THE CLOSEST SUBJECT MATTER THAT EXISTS IN THE PRIOR ART**

Although evidence of unexpected results must compare the claimed invention with the closest prior art, applicant is not required to compare the claimed invention with subject matter that does not exist in the prior art. *In re Geiger*, 815 F.2d 686, 689, 2 USPQ2d 1276, 1279 (Fed. Cir. 1987); *In re Chapman*, 357 F.2d 418, 148 USPQ 711 (CCPA 1966) (Requiring applicant to compare claimed invention with polymer suggested by the combination of references relied upon in the rejection of the claimed invention under 35 U.S.C. 103 “would be requiring comparison of the results of the invention with the results of the invention.” 357 F.2d at 422, 148 USPQ at 714.).

(emphasis added). In view of the foregoing, Applicants respectfully request that the PTO reconsider its requirement that Applicants compare the presently claimed invention with the *combination* of Imafuku and Koshiishi.

If the PTO considers reference other than Imafuku to be the closest single reference, Applicants respectfully request that the PTO identify that reference so that Applicants can prepare an appropriate response. Absent such an indication by the PTO, Applicants presume that, by citing Imafuku as the primary reference in its rejections, the PTO considers Imafuku to be the closest single prior art reference.

On page 6 of the Office Action, the PTO has stated that “it is improper for applicant to just arbitrarily select an average grain size of 13  $\mu\text{m}$  to meet the criteria of Comparative Example 1 when the average grain size of Imafuku is between 10-100  $\mu\text{m}$ .” The PTO continues, “[o]ne of ordinary skill in the art could have selected an average grain size of 24, 27 or 40  $\mu\text{m}$  which is in the claimed range of the invention and examples 1-6.” These statements also seem to reflect a fundamental misunderstanding on the part of the PTO of the law and of the MPEP.

First, Applicants note that Imafuku’s disclosure includes no working examples of plasma resistant members. Second, Imafuku’s disclosure includes no description of a single suitable average grain size other than the recitation of the range of 10-100  $\mu\text{m}$ . While the PTO has suggested that “[o]ne of ordinary skill in the art could have selected an average grain size of 24, 27 or 40  $\mu\text{m}$  which is in the claimed range of the invention and examples 1-6, there is simply no basis for such a selection, i.e., such a composition “is not described in the closest prior art.” These 3 average grain sizes are nowhere expressly disclosed in Imafuku. As set forth in MPEP §716.02(e), “[a]lthough evidence of unexpected results must compare the claimed invention with the closest prior art, applicant is not required to compare the claimed invention with subject matter that does not exist in the prior art.” See also *In re Geiger* 815 F.2d 686, 689 (Fed. Cir. 1987).

The language “does not exist in the prior art” means that the subject matter “is not identically disclosed or described as set forth in section 102,” i.e., the standard that is mandated in 35 U.S.C. § 103(a). Accordingly, the standard and uniform practice has grown up for decades in the PTO of requiring an applicant to compare against the closest single concrete embodiment or example that is disclosed in the closest single prior art reference. If

no such embodiment or example is contained in the closest prior art reference, then the applicant need only demonstrate, e.g., that subject matter within the claimed ranges is unexpectedly improved in comparison to subject matter that (although it falls within the general teachings of the reference) lies outside of the applicant's claimed ranges. Taking these factors into consideration, Applicants, in the previous response, have discussed the data set forth the present specification, focusing on Comparative Example 1 as an example which is closer to the presently claimed invention than any example disclosed by Imafuku.

The product of Comparative Example 1, like Imafuku, is made of alumina and magnesia (the Mg in Table 1 refers to MgO - see the first full paragraph on page 12), has a purity of 99.9%, has a bulk density of 3.98 g/cm<sup>3</sup>, and an average grain size of 13 μm (within the 10 to 100 micrometer range of Imafuku). Imafuku includes no example that is closer than Comparative Example 1. For Comparative Example 1, the discharge time before particles exceed the control value is 22 hours.

The plasma resistant member of claim 1 of the present invention comprises "an average grain size of 21.7-40 μm, a surface roughness of 1.3-2.2 μm, and a bulk density of 3.90 g/cm<sup>3</sup> or over but less than 4 g/cm<sup>3</sup>." Example 1, shows data for an average grain size of 24 μm, a surface roughness of 1.3 μm, a bulk density of 3.99 g/cm<sup>3</sup>, all values within the ranges of claim 1. In contrast to Comparative Example 1, the discharge time before particles exceed the control value for Example 1 is 80 hours. Thus, as shown, for example, by the discharge times for Example 1 and Comparative Example 1, the combination of parameters of claim 1, provides unexpected results as compared to an embodiment that is generally within the prior art teachings and is closer to the claimed invention than any embodiment expressly described in the closest single reference applied by the PTO.

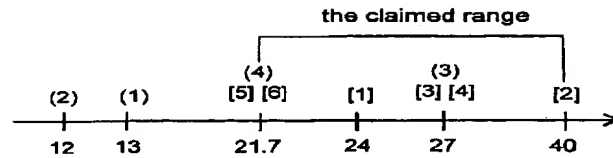
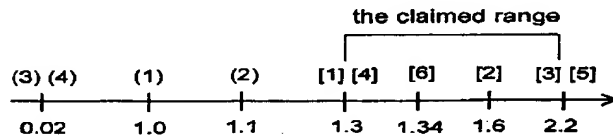
On page 7 of the Office Action, the PTO has indicated that the unexpected results are not commensurate in scope with the claimed range. Not only is this factually incorrect, but Applicants note that this statement is inconsistent with statements by the PTO in prior Office Actions. For example, in the last full paragraph on page 4 of the Office Action dated October 28, 2002, the PTO acknowledged that Table 1 and Table 2 in the specification "show data for average grain sizes of 21.7-40 μm, Ra of 1.1 -2.2, and density of less than 4". Based upon this acknowledgement, in Applicants' next response, Applicants amended independent claim 1 to recite "an average grain size of 21.7-40 μm, a surface roughness of 1.3-2.2 μm, and a

bulk density of  $3.90 \text{ g/cm}^3$  or over but less than  $4 \text{ g/cm}^3$ .” (Applicants amended claim 1 solely to advance prosecution of the claimed subject matter to, hopefully, allow that subject matter to issue as a patent without further delay, and Applicants expressly reserved the right pursue additional subject matter in further applications.) The PTO, however, has provided no explanation of this inconsistency.

Applicants furthermore submit that the data contained in the application is reasonably commensurate with the scope of the claims, as required by the applicable standard. In the same paragraph on page 7 of the Office Action, the PTO goes on to state that “unexpected results have not been demonstrated for a combination of an average grain size of  $23 \text{ }\mu\text{m}$ , surface roughness of  $2 \text{ }\mu\text{m}$ , and bulk density of  $3.9 \text{ g/cm}^3$ .” Taken in light of the PTO’s indication that claims 9-14 contain allowable subject matter (claims 9-14 each recite specific values for grain size, surface roughness, and bulk density) and in light of the PTO’s rejection of Applicants’ presently claimed ranges, the PTO seems to suggest that Applicants must provide data for every data point within the claimed ranges. This simply is not the law.

As set forth in Applicants’ previous response, they believe that the unexpected results are reasonably commensurate with the claimed range if the results in Tables 1 and 2 are read by taking into consideration the detailed explanation of Examples 1-6 and Comparative Examples 1-4 in the present specification, from page 12, line 4 to page 19, line 8. Figure “X”, below, shows the relationships between (i) the claimed ranges for grain sizes and Ra, (ii) the Examples and (iii) the Comparative Examples. In Figure “X”, [ ]’s are used to denote Examples of the present invention which are within the claimed range, and ( )’s are used to denote Comparative Examples which are not within the claimed range.

Figure "X"

Re: grain sizeRe: surface roughness

As can be seen in Figure "X", Examples 1-6 provide data both at the end points and between the endpoints for the claimed ranges. Applicants note that the PTO has indicated that claims 9-14, which correspond to Examples 1-6 in the specification, respectively, contain allowable subject matter. Since these individual Examples, which span the claimed ranges, are allowable, Applicants submit that the claimed ranges are allowable. It has never been the law that an applicant is required to provide comparative data with regard to all embodiments falling within a claim, but rather only a reasonable number of embodiments is required. Typically, and with particular applicability to the present context, the law accepts as sufficient comparative data taken at or near the endpoints of the claimed range. Based on this traditional measure of sufficiency, Applicant's comparative evidence goes well beyond the minimum level of evidence required to be probative of non-obviousness. Reconsideration is therefore respectfully requested.

If the PTO persists in its refusal to accept Applicant's evidence as sufficient to demonstrate non-obviousness for the entire scope of the claims, Applicants call for the PTO to cite applicable legal precedent to support such a refusal. Applicants respectfully submit that the cited precedent clearly demonstrates the error of the PTO's position in this regard.

In view of the foregoing remarks and in view of the objective evidence in the

specification, Applicants submit that claim 1, as well as claims 2-8 which depend therefrom, are non-obvious respectfully request reconsideration and withdrawal of the outstanding rejection under §103.

In addition to the foregoing, Applicants submit that neither Imafuku nor Koshiishi discloses Applicants' motivation for producing the presently claimed invention. See *In re Lee*, (00-1158, 01/18/2002, Fed. Cir. 2002). Imafuku discloses a bulk density of 3.980 or more and average grain sizes of 10-100  $\mu\text{m}$ , but never suggests anything at all regarding the surface roughness or smoothness. Koshiishi discloses surface roughness or smoothness of 2  $\mu\text{m}$  or less but never suggests average grain sizes. In this respect, regarding surface roughness, Koshiishi states that "the surface roughness of the surface to be polished is preferably 2  $\mu\text{m}$  or less in view of the difficulty in sticking of secondary products and easiness in removable of sticking substances." (col. 27, lines 9-12)

As can be seen from this explanation, the reason why Koshiishi selects the disclosed surface roughness is fundamentally different from the reason for selecting the presently claimed range of surface roughness. As explained in the present specification, page 4, lines 14-23, the objects of the present invention include the following:

An object of the invention is to provide a plasma-resistant member, which does not involve any breakaway of alumina particles and is excellent in mechanical strength, and is able to suppress the breakaway of a once deposited polymer, and also a plasma treating apparatus using the member.

Another object of the invention is to provide a plasma-resistant member, which enables one to prolong an apparatus-cleaning cycle for removal of a deposited polymer, and a plasma-treating apparatus using the member.

In order to avoid removal of a deposited polymer, a person skilled in the art might employ the contents Imafuku, but, Applicants submit that that person would never select the surface roughness of 2  $\mu\text{m}$  or less as explained in Koshiishi, once being aware of (as is implied by law) the above-quoted explanation in Koshiishi.

Thus, Applicants submit that it would not have been prima facie obvious for a person skilled in the art to combine Imafuku and Koshiishi to arrive at the presently claimed invention, which, as set forth in claim 1, recites "an average grain size of 18-45  $\mu\text{m}$ " and "a

surface roughness Ra of 0.8-3.0  $\mu\text{m}$ ." In addition, unexpected advantages for avoiding falling off of the polymer deposit film are obtained, which would be sufficient to rebut a prima facie case of obviousness, even if such a case were to be presumed.

**Allowable Subject Matter**

Applicants acknowledge, with appreciation, the PTO's indication that claims 9-14 contain allowable subject matter and that these claims would be allowable if rewritten in independent form.

**CONCLUSION**

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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